

W5YI

National Volunteer Examiner Coordinator

REPORT

Up to the minute news from the world of amateur radio, personal computing and emerging electronics. While no guarantee is made, information is from sources we believe to be reliable. May be reproduced providing credit is given to The W5YI Report.

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Vol. 11, Issue #9

\$1.50

PUBLISHED TWICE A MONTH

May 1, 1989

LIMITED CODE PETITION FILED WITH FCC!

"The FCC is mandated to allocate spectrum based on the needs of the public, not amateur radio. As a teacher of young people interested in electronics, it is clear to me that the public need would best be served if there were a door into amateur radio that had a limited code requirement. Once in the door, these youngsters would be tempted to the rest of the world (and technology) of amateur radio. The public would be served as the base of potential scientists and technicians would be enhanced, thus increasing the possibility that the technology that has slipped from us to other countries will return. My role as a teacher will be easier, as I will have an educational tool, Amateur Radio, that is enjoyable and educational. The ARRL and other parochial organizations have only the special interest of amateur radio on their agenda. Many times those interests coincide with the public interest, other times not." Excerpt from petition filed by Burton E. Fisher, K1OIK.

Burt Fisher, K1OIK, of South Dennis, Massachusetts, has submitted a petition for rule-making which seeks to adopt a subclass of the Novice amateur radio license. First licensed at age 14, Fisher holds an Extra Class ticket and has been licensed thirty years. It was the first petition he has ever filed.

Fisher, an electronics teacher at Cape Cod Tech, a regional vocational high school, said he was motivated to submit the petition after seeing and hearing many discussions on the air, on packet ...and in the amateur radio press about the merits of no-code entry into the Amateur Radio Service.

"We have a small amateur station here at the school in Harwich, Mass. At first I was pretty much for a no-code license, but I am convinced that some code is still necessary. Morse code is a basic part of amateur radio. Many of the more recent digital modes will not be with us ten years from now, ...newer techniques will take over. Although it may not be used very much, CW which has been used

since the beginning, will still be here a hundred years from now. Code is more than a tradition, it is a basic element of communication. I am confident it is always going to be around."

"As a teacher we teach students how to do math by hand even though calculators are readily available. If we eliminated from the exam every aspect of amateur radio the applicant was not interested in, the result would be an amateur with a tunnel vision of the Amateur Radio Service and the related technology."

"The basis of my petition is to make technology more attractive to a larger base of people ...particularly students and young people. The more people we have interested in electronics, the more people we will have ultimately developing high technology ...better, faster or more economically than other foreign countries. I believe that is why we have lost a lot of our high-tech engineering and manufacturing capability to other nations. In Japan, the percentage of students interested in electronics

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well exceeds ours. Part of reason for this is Japan has a very large amateur radio base. I would like to see us expand that here in the U.S."

The Novice-V Proposal

Fisher wants the new subclass of the Novice license to be known as the **Novice-V** ...the V represents VHF. The privileges of the *Novice-V* would include all modes, emissions at full amateur power above 52 MHz, except FM would not be allowed in the two-meter band. Fisher said he eliminated the bottom two megahertz of the six meter band and FM on two meters to make the proposal more acceptable to the amateur community.

"There is a perception that two meters is over-populated as it is and a surge of newcomers would cause a great deal of interference and problems. The consensus seems to be that we need a lot of new amateurs ...but not in my back yard. It is like building prisons. We need them, *but not in my neighborhood*. If I was to file the petition the way I really wanted it, I probably would have included FM privileges on two meters ...but I felt it would not have any chance of being approved."

Burt said that he considered allowing two meter FM operation on a limited number of repeated frequencies - or with 5 watt ERP power levels - but rejected these as unenforceable or inappropriate. The 50-52 MHz portion of six meters was eliminated from the Novice-V proposal to leave spectrum for higher class DX operation. "Six meters has world-wide capability - especially now [with the sunspot cycle near maximum.]"

"With the exception of two meters, all the proposed frequencies are under utilized. There are many areas in the country where even two meters is under utilized, however by removing FM as a privilege, the *Novice-V* will be encouraged to use the digital modes. Without a sufficient "carrot" - and two meter FM is denial of a significant "carrot" - we run the risk of being unable to attract the youth who would not understand the concept of digital communication as easily as voice."

Regular 2X3 Group D call signs would be issued but must be appended with a "temporary V" suffix by the applicant. Packet ID would be the call followed by the radio district, for example: KA1AAA-1. "The requirement of special call identification allows easy monitoring of the *Novice-V*, and is an

incentive to the *Novice-V* to upgrade.

Examination requirements for the *Novice-V* would basically be the same as for the present *Novice* - a 30 question written test, except the five words-per-minute Element 1(A) would not be required. In its place would be substituted a ten question written exam to ascertain that applicant has knowledge of the international Morse code.

"The code requirement would be administered by a simple ten question multiple choice test, in which questions on random characters would be asked. It is important to have an exposure to code, as it would make the upgrading less ominous. What I would hope is that the applicant would memorize the same required Morse code characters as required under the 5 wpm test and then be able to pick out ten characters. The test would relate ten dot-dash sequences to a character, or the reverse, to demonstrate that they have some knowledge of code."

“This would keep Morse code there so when they went to upgrade – and I am confident most people will want to upgrade -- the code would not be totally foreign to them ...something that they have not seen before. It won't take anyone very long to memorize the characters. In this way, code won't be a barrier, but this very basic part of amateur radio will be kept intact. I detested having to learn Morse code. But I found out that now that I don't have to know it, about 50% of my contacts are CW. Many DX stations are a lot easier to communicate with on CW. You don't have to deal with an accent, and limited vocabularies.”

I mentioned to Burt that there were certain similarities between his proposal and that of the *ARRL No-Code Committee* ...particularly as relates to two meters. Fisher said that he filed his petition before the panel completed their work and "I had no idea whatsoever of what they were proposing." The FCC sent out a news bulletin on April 14th acknowledging receiving the Fisher petition on April 4th.

FCC RELEASES \$PART 15 ORDER

The FCC has finally released the text of the *§Part 15 Report & Order* concerning technical standards for non-licensed low-power RF devices. (See our last issue - Pages 1 to 3 - for more on the §Part 15 deregulation.) Here are some significant and interesting quotes from the *Report & Order*.

NOVICE AMATEUR RADIO COURSE - Complete with 2 cassette Morse code books, illustrated text book, index, very good led

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This is only the 1st of several §Part15 proceedings to come. FCC deferred action on several issues. One of them concerned the use of spread spectrum in the 902-928 MHz (amateur) band. Spread-spec is now permitted in that band at 1 watt; it has been for about five years. But there was concern by commenters about how to do the measurements.

We'll let you read the FCC statements for yourself. This is only, of course, a small part of the R&O which is 64 pgs long; much of it is not relevant to amateurs per se.

(Excerpts from FCC:) "Many commenting parties agree...that there is a need for a comprehensive revision of §Part 15 of the rules and support the basic framework of our proposal... These parties represent a wide field of interests ranging from manufacturers of electronic equipment to licensees of authorized radio services. Supporting comments state that a comprehensive revision and modernization of the §Part 15 rules is long overdue in light of the rapidly evolving capabilities of electronic technology."

"A number of parties representing the interests of authorized radio services and recognized "passive" radio uses, such as radio astronomy, oppose any restructuring or revision of the §Part 15 rules that would encourage or facilitate the operation of significant numbers of low power, non-licensed RF devices or that would allow such devices to operate at higher emissions levels. These parties, who consist primarily of radio astronomers and amateur radio operators, are concerned that the proliferation of low power RF devices could increase the level of ambient RF "noise" and thereby disrupt reception of relatively low level radio signals or signals transmitted by licensed radio stations."

"We continue to believe it is desirable and appropriate to restore the technical flexibility originally provided for operation of non-licensed RF devices in the §Part 15 rules. The current system that requires rule making for authorization of new §Part 15 devices imposes delays and costs on innovating parties that tend to have a chilling effect on the development and marketing of new products."

"It is apparent from the record and from our own general observation of the market for electronic equipment that there is strong demand by the public for the types of devices that are typically authorized

under §Part 15. It is, therefore, all the more important that we make every effort to remove all regulatory constraints that may unnecessarily impede the market from introducing new RF devices. We believe that with proper technical and operational rules it is possible to provide for expanded operation of non-licensed RF devices while maintaining a satisfactory RF environment for operation of licensed radio services and recognized passive users of the radio spectrum."

"We have attempted to eliminate all unnecessary and overly restrictive technical regulations. However, in some instances our decision to permit greater technical flexibility has necessitated that we adopt standards that are more restrictive than those of the existing §Part 15 rules. In addition, we have also taken this opportunity to tighten the §Part 15 technical standards to reduce interference to authorized radio services, in particular, the AM broadcast service."

"We proposed to permit §Part 15 intentional radiators to operate without restrictions as to bandwidth, duty cycle, modulation technique or application as long as the equipment does not operate in certain restricted bands and it complies with the following general emission limits:"

Frequency in MHz.	Field Strength in uV/M	At Distance in Meters
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

"The limits proposed were based on our experience as to the level that could be permitted without undue risk of interference to authorized radio services, the limits currently specified for Class B computing devices, and, for frequencies above 960 MHz, the recommendations of NTIA."

"The League indicates that its engineering analysis found that interference to amateur operations could occur at distances ranging from 78 meters (at 14 MHz) to 102 meters (at 28 MHz) from §Part 15 devices operating at the proposed limits below 30 MHz. Above 30 MHz, the League indicates that operation under the general limits could cause

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interference at distances ranging from 0.56 km (at 420 MHz) to 1.9 km (at 902 MHz). ...The limits for emissions between 1.705 and 30 MHz will provide essentially the same protection to authorized services as the existing rules. We observe that §Part 15 devices already are permitted to operate in the 1.705-10 MHz band at higher limits without known interference problems to the authorized radio services."

"We also believe that interference distances calculated by the League and others for frequencies below 30 MHz are overly optimistic and that the actual potential for interference from §Part 15 devices is significantly less. ...the risk of interference to shortwave broadcasts and amateur radio station transmissions by §Part 15 devices operating below 30 MHz appears to be very low."

"The proposed general limits in the 30-960 MHz band are the same as the limits currently applied to Class B computing devices. The claims of computer interference from individual amateur radio station operators are not persuasive enough to warrant more stringent limits. For example, they do not indicate if the reported interference resulted from a computer co-located with the equipment receiving interference, if the source of the interference was a Class B (residential) computer, or if the computer was in compliance with our technical standards."

"A number of comments request changes to the proposed labelling requirements. The League and a number of individual commenters want the statement that §Part 15 devices must accept interference to be expanded to include a statement referring the user to the manufacturer in the case of received interference."

"ANARC (Association of North American Radio Clubs, a short wave listener group) states that a label regarding the vulnerability to interception of the signals by other parties should be required, such as the label presently required for cordless telephones. We believe that the addition to the label of a statement referring the user to a manufacturer's contact in case of interference, as requested by the League and others, would be impracticable. We believe that it would be unreasonable to burden manufacturers with the responsibility for addressing individual interference problems experienced by devices that expressly are not protected from interference."

"We do not find it necessary to require infor-

mation on the label to advise users of the vulnerability of signals of §Part 15 devices to interception by other parties. There is no indication that users are not aware of this potential or that such interception is occurring in a manner that warrants regulatory action."

EXPOSURE TO ELECTROMAGNETIC FIELDS

The *Environmental Protection Agency's* (EPA) nearly complete study on the effect of radio frequency emissions on the human body still has not been resumed. Despite years of work and standards being 90% complete, EPA abandoned the project because their limited funding has been diverted to other projects such as radon (cancer causing) gas contamination in U.S. homes.

Even though there is no proof that exposure to RF or electric fields is linked to adverse health effects, local governments and the media continue to keep the issue alive. A New York City television station did a recent feature entitled "**Killer in your Bedroom.**" David Carpenter, MD, of the New York State Dept. of Health was quoted as saying that magnetic fields given off by electric blankets may cause cancer, retard learning ...and development of the brain.

Fields from electric blankets reportedly are forty times stronger than electric power lines "...which has already been linked to cancer." Manufacturers supposedly could design an electric blanket that does not generate a large magnetic field, but are hesitant because if they did, "...then everybody who ever used an electric blanket and got cancer would sue them."

The day after the WNYW-TV report, the NYS Health Department received over 350 calls about the possible association between cancer and electric blankets. A campaign is now underway in New York State to fund their own study on electromagnetic radiation in residential communities. The Department of Health has also prepared two form letters addressing the electric blankets/waterbed heaters and electric power line radiation concern to be sent to inquiring consumers.

Some time ago, New York electric utility companies funded the \$5 million **New York Power Lines Project**, but had no role in designing or evaluating the actual research. The study did find a

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link between proximity to power lines and higher childhood cancer rates but concluded further research is needed. The New York *Public Service Commission* has now set interim standards for new electric power line installations. No standards have yet been proposed for household wiring and consumer appliances.

The recent publicity on RF exposure has prompted the *Food and Drug Administration* to issue a statement. The FDA said:

"For the past ten years scientists, including FDA scientists have been looking into the possibility that these [high electromagnetic] fields might have an effect on human health. The studies to date have not demonstrated such an effect... A study conducted in Colorado in 1979 suggested a relationship between exposure to electromagnetic fields and an increase in childhood cancer, but a similar study conducted in Rhode Island the following year did not show such a relationship. Recently, a study supported by New York State indicated a possible relationship between exposure to the strong electromagnetic fields from electric power lines and childhood cancer. But the researchers conceded that the evidence was only 'suggestive' rather than conclusive. A 1988 study in Los Angeles County found no association between the use of electric blankets and adult leukemias. Animal studies have been inconclusive too. Based on current information, FDA sees no reason for people to abandon use of electric blankets. FDA will continue to participate in research in this area and will carefully monitor the research of other organizations."

The EEPA, while sounding like a federal agency, is the non-profit Washington, DC based **Electromagnetic Energy Policy Alliance** ...an association of manufacturers of electrical and electronic systems. They were organized about five years ago to sponsor RF research and standards ...and to develop education programs on the production and use of non-ionizing electromagnetic energy. They have now published a fact sheet concerning the use of mobile cellular radio telephones.

They say that cell site antennas are usually installed atop 100-150 foot masts and the levels of RF energy near the base are minimal. Measurement of roof-mounted antenna installations are substantially below U.S. exposure guidelines. Most mobile antennas pose no problem since the antenna is far enough away from passengers and the

power (3.5 W) is low. Data shows that when the distance between a person and a cellular antenna is 4 inches or more, the exposure levels are well below government standards. Cellular hand-held (portable) units with an antenna on the top of the handset have power levels of .6 W, "...a power level well below the 2.0 W commonly used for hand-held portable CB transceivers and the 5.0 W commonly used for hand-held marine transceivers."

The EEPA concluded that radiation from cell sites and cellular mobile/portable units "...expose users to RF levels far below U.S. protection guides and lower than any foreseeable U.S. regulations." The controversy about how safe RF emissions and electric fields are in residential communities continues.

• A *New York Times* report warns of **laser speed traps**. They say police will be soon be using lasers in their hunt for speeders. A Colorado company has developed a laser speed detector that emits infrared light invisible to humans and radar detectors alike. Its pencil-thin beam can pick out a single car up to a third of a mile away. Radar has a much broader beam. Although countermeasures could theoretically be devised by the \$300 million a year radar detector industry, costs could be prohibitively expensive. Insurance studies say one car in seven is equipped with a radar detector which are outlawed in Connecticut, Virginia and the District of Columbia. The laws have yet to be tested in the courts.

The laser units were originally developed for surveying and as military range-finders. They are already being tested in Colorado and Michigan and will be in use in other states by this summer. The laser speed gun weighs about 4 pounds and measures 3 by 5 by 7 inches. Its beam must be shot from a standstill position. Cost is around \$3,500 - about triple that of most mobile radar units.

It's a cat-and-mouse game between speed measuring units and radar detection. The *Carbella Stealth Faring* system uses radar-absorbing technology like those of the stealth bomber. Your car reportedly becomes radar invisible. Electrolert, maker of the Fuzzbuster, has a new *Anti-aircraft Spybuster* that monitors aerial speed spotters and the FAA's national radar system. And reportedly a countermeasure has already been developed for the laser gun that returns signals showing whatever speed the driver wishes.

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MARCH VE PROGRAM STATISTICS

<u>October</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
<u>No. VEC's</u>	<u>*63</u>	<u>*62</u>	<u>*62</u>
Testing Sessions	444	438	516
<u>VEC</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
ARRL	43.5%	43.4%	36.6%
W5YI	31.5	30.1	34.9
CAVEC	5.2	4.8	7.0
DeVry	5.9	6.4	7.0
Others	13.9	16.3	14.5
Year-to-Date Sess:	1036	1140	1270
Elements Administ.	9352	10252	10441
<u>VEC</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
ARRL	52.5%	51.2%	49.7%
W5YI	20.2	21.5	26.8
CAVEC	7.2	5.6	7.2
DeVry	4.7	4.0	4.9
Others	15.3	17.7	11.4
Year-to-Date Elem.	18513	23052	23377
Applicants Tested	6183	6088	6197
<u>VEC</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>
ARRL	52.1%	50.4%	46.7%
W5YI	20.8	23.1	26.0
CAVEC	6.6	5.0	6.4
DeVry	4.9	4.0	5.1
Others	15.6	17.5	15.8
Year-to-Date Tested	12380	13504	13821
April	1987	1988	1989
Pass Rate - All	58.6%	62.2%	61.7%
Pass Rate - W5YI	56.1%	53.4%	58.4%
Applicants/Session	13.9	13.9	12.0
Appl./Session W5YI	9.1	9.3	9.7
Elements/Applicant	1.5	1.7	1.7
Sessions Per VEC	7.1	7.1	8.3
Administrative Errors by VE's/VEC's			
April	1987	1988	1989
Defect. Applications	0.3%	1.3%	0.6%
Late Filed Sessions	0.5%	1.6%	1.7%
Defective Reports	0.9%	2.3%	2.5%

*Note:

The FCC Considers ARRL, W5YI and DeVry to be 13 VEC's each since VEC's are appointed on a regional basis. The 13 regions are: Call Sign districts 1 through 0 plus Alaska (11), Caribbean (12) and Pacific Insular areas (13).

Source: Pers.Rad.Branch/FCC; Wash., D.C.

•**Drug traffickers in Latin America** use a lot of ham radio gear. Their communications, preceded by a whistling callup, can be heard regularly in the low end of the 20 and 40 meter cw ham bands, as well as throughout the segment 14350-14500. At least one U.S. distributor advertises ham radio transceivers in Spanish in the predominantly English language onboard magazine of TACA, El Salvador's commercial airline. Wonder if this is how they find out where to buy the gear?

•A settlement has been reached between Daniel Granda, KA6VHC, Lewis DePayne, KA6RBJ and the **220 Megahertz Frequency Coordination Commission**, also known as 220-FCC ...and Bill Pasternak, WA6ITF, Karl Pagel, N6BVU, Westlink Radio Network and the **220 Spectrum Management Association of Southern California** (220-SMA). The suit alleges that certain December 1986 Westlink broadcasts contained defamatory remarks. The agreement requires Karl Pagel to submit a written apology for a statement he reportedly made which might have led people to believe that the 220-FCC was responsible for his receiving unsolicited mail and harassing telephone calls. Pasternak is required to broadcast a retraction of his "electronic terrorism" story on the *Westlink Radio Network* - now called *Newsline*. Pagel has also agreed to a meeting with the 220-FCC to discuss the future relations between 220-FCC and 220-SMA. The counsel for 220-FCC is Jomarie DePayne, the wife of plaintiff, Lewis DePayne. The agreement merely clarifies the positions of all concerned ...and is not an admission of guilt.

•League President **Larry Price/W4RA's** letter to Canadian Radio Relay League President **Tom Atkins, VE3CDM**, has caused quite a ripple north of the border. Canada has proposed to do away with mode subbands - instead allowing any mode/emission on any ham band. Price asked Atkins to request that the Canadian government emphasize to their amateurs the importance of observing voluntary band plans developed by the IARU. *Canadian Amateur Radio Federation*/News Service editor, **Bernie Burdall, VE3NB**, commented on the Price letter in their April 15th bulletin "...Canadian amateurs will agree we are quite capable of managing our own affairs. Do U.S. amateurs always act responsibly? Listen around." Atkins, fearing a U.S. response which could result in another phone band expansion, did follow Price's suggestion, however, and asked the Dept. of Communications to stress the importance of following IARU band plans.

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• May 17 has been designated by the International Telecommunication Union (ITU), Geneva, as **World Communications Day**. Theme of this year's Communications Day is "*International Cooperation*" underscoring the importance of the need for the world telecommunications community to cooperate internationally to meet the challenges of tomorrow. The ITU was founded in 1865 as the International Telegraph Union.

• The *Radio Club of America* has announced that their Executive Vice President, **Stuart F. Meyer, W2GHK**, has been elected a director of the *Radio Emergency Association Communication Teams* (REACT) for the term 1989-1990. He is also a director of QCWA after serving two terms as its president.

• The FCC has announced that it is extending the present version of the FCC Form 610A "**Application of Alien Amateur Radio Licensee for Permit to Operate in the United States**." It is unbelievable the amount of personnel effort and paperwork the government must go through to merely continue using the same form! The public is also allowed to comment on the need for the form to the *Office of Management and Budget*. The FCC had to determine how many individuals are projected to use the form and the "Estimated Annual Burden" on the public. In this case the FCC estimates that 2,000 alien amateurs will spend 166 hours filling out the forms. All this red tape is caused by the *Paperwork Reduction Act of 1980*. It should be called the *Paperwork Generation Act*.

• The ARRL program for **insuring ham gear** must be followed in detail if you expect to get your claim paid! Some of the procedures are *not* user friendly. Some claims have not been paid as the equipment was not listed on the company records. The policy will cover only equipment "as per schedule on file with the company." Newly acquired equipment valued under \$1,000 is covered - *but only until the policy renews*. Since the insurance company does not send out your covered equipment schedule with the renewal notice, you must use your memory to know which equipment is insured. (You must notify the insurance administrator at once if the value exceed \$1,000.) Original receipts for new gear are also required when making a claim. Do not throw away those receipts after the warranty expires! If you buy used gear, a written confirmation from the insurance company is a good idea in order to guarantee that a claim on the equipment

will be paid. It is also a good idea to obtain a bill of sale or receipt when you buy used ham gear at a flea market or from a ham friend to prove ownership in the event of a claim. If you have any doubt about the equipment you think you have insured, you should obtain a photocopy of the schedule on file with the company. If you have any questions, contact the insurance agent at toll free: 1-800-323-2106. (Albert H. Wohlers & Co., Park Ridge, IL)

• The science of linking what you know ...to what you would like to. **A One Minute Memory Course!** Memory aids can help you to remember complex formulas, procedures and other detailed information. There are six basic memory joggers.

(1.) Association

Aid associated with point to be memorized.

(2.) Meaning

Aid means point to be memorized.

(3.) Mispronunciations

Aid is mispronounced point - or associated/continued word.

(4.) Following word

Aid is word that normally follows point to be remembered.

(5.) Looks Like

Aid is picture associated with point to be remembered.

(6.) Sounds Like

Aid is sound pattern - or series of words - to be remembered.

Now an example of how these are used!

Let's apply these *memory joggers* to remembering the various values of the color codes for resistance.

No. Color Aid # Memory Aid

0	Black	(2)	Think of Black as NO color
1	Brown	(6)	Pronounce Brown as Brow- WON
2	Red	(1,4)	Think of TWO red lips
3	Orange	(4,6)	Say Orange TREE , Sounds like 3
4	Yellow	(4)	Think of Yell- FOR help.
5	Green	(2,1)	A FIVE dollar bill or five-spot is green.
6	Blue	(3,2)	Think of Blue and SICK , Sounds like six.
7	Violet	(1)	Say Violet HEAVEN , rhymes with seven.
8	Gray	(6)	Say Gray- EIGHT or Great!
9	White	(4,3)	Think of White WINE - rhymes with nine.

Tolerance (fourth band)

10% Silver (5,6) Think **TIN**, looks/sounds like tin/10. Any other color is Gold (5%) - No color: 20%

Corny? You bet, but it works! Try the system with other things you need to remember.

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• Effective April 1st, **pay phone calls have been deregulated.** No longer will your call be automatically routed over the AT&T network. There are some things you should know! First of all, it isn't the consumer that long distance companies are courting. It is the site owner ...who are usually motivated by profit from their pay phone! It is these owners that will determine who their primary long distance carrier will be. Consumers can change this decision, however, by merely asking the operator which service carries long distance calls from that phone. And you may want to do just that - particularly if the carrier turns out to be an AOS ...*Alternate Operator Service*. AOS operations add surcharges to long distance calls and legally pocket a piece of the added revenues while offering site owners increased commissions. There is no telling what your call will cost if handled through an AOS operation. It could easily be double ...or more! One thing for sure! It certainly will be much higher than if handled by one of the big three, AT&T, MCI or Sprint, who will compete fiercely on price. Here is how to avoid AOS operations at pay phones. Dial "0" at the pay phone and ask the operator which long distance carrier is assigned to the phone. If not the carrier of your choice, then ask the operator to connect you to that carrier. If the operator can't - or won't - do that, then hang up. There is no charge for this action, but be aware that once you are "handed" off, the call becomes an "operator assisted" call which carries a higher cost than the lower *direct dial* rate. It will still be lower than those of an AOS. Both US Sprint and MCI have special access codes should you want to bypass the "0" operator. Dial 1-800-877-8000 for US Sprint ...or 950-1022 (1-800-950-1022 in smaller cities) for MCI. Then punch in a "0" plus area code and phone number. Alternate Operator Service operations charge more for the same reason that food costs more at an airport. You represent a captive customer - *only this time you have a choice if you know the "system."*

• A "black box" **data recorder for automobiles** has been developed in West Germany that adds only about \$200 to the cost of a car. While insurance and enforcement groups welcome the technology, some consumers are certain to be less than excited about the new capability. The small (about the size of two cigarette packs) recorder registers change of direction, the status of lights and turn signals, steering wheel and pedal positions, speed, even whether the radio is on. Every 30 seconds new data will be stored on a microchip. This data "freezes" in the event of an accident.

• The FCC has proposed to allocate 173.075 MHz to a **stolen vehicle tracking system.** The spectrum is presently allocated to exclusive government use, but is being made available for non-government law enforcement use through an agreement with the NTIA. Stolen vehicles equipped with the \$500 anti-theft transceivers during a Massachusetts test were found in most cases within 24 hours compared to an overall vehicle theft recovery rate of only 9 percent. The transceiver is activated remotely ...its unique identification code tracked by the police. Another vehicle theft prevention and recovery system is called the "Locator." The Swiss-made device is armed by a keypad - similar to a commercial burglar alarm system. The moment a car is stolen or an emergency alarm is transmitted, the *Locator* satellite locks in on the vehicle and sends the vehicle's location to a local Central Control Office. The vehicle appears on computer grid coordinates that can be pinpointed right down to the street number! Central Control notifies the closest law enforcement agency. The *Locator* emits a different signal for medical emergencies ...or when a roadside service vehicle is to be summoned.

• Truckers ushered in the alternate long distance telephone age when MCI was formed in the midwest to keep track of trucks on the road. Radio communication took on new meaning when truckers discovered CB radio. **Now truckers can ten-four by satellite!** No longer do they have to stop and check in by phone with the dispatcher to receive instructions. Tiny 6-in. diameter satellite antennas (which look like hard hats) mounted atop trucks let trucking companies keep track of and communicate with units on the road. The automatic tracking capability uses Loran-C, long range navigation technology. The new **Satellite System 2C** offered by Geostar, a Washington satellite communications company, lets trucks send and receive low cost digital data. The system can process up to 1 million messages an hour at a cost of only about a nickel each. Geostar is also working on a digital voice system. A 1988 Dept. of Commerce study estimates the revenues from MSS, mobile satellite services, could reach \$200 million by 1992 ...\$1 billion by 1995. More than 135,000 MSS transceivers will be in operation by the end of next year. Early next year Geostar will offer a 2-way digital data/voice personal communications service to a \$500 hand-held transceiver equipped with a standard RS-232 port that can be hooked to a laptop computer or portable FAX. This concept could ultimately provide mobile electronic mail ...even replace cellular telephones.

WOULD YOU LIKE TO BECOME A VOLUNTEER EXAMINER?

"I am a currently licensed Extra Class amateur radio operator and wish to be a volunteer examiner. I have never had my station or operator license revoked or suspended." John A. Chignell, W5YI

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• The British weekly, "*New Statesman and Society*" tells about five south London radio amateurs who were heavily fined and forfeited their radio equipment for receiving non-government approved radio signals, and then talking about "interesting radio frequencies" on the air. Section 5 of the 1949 *Wireless Telegraphy Acts* makes it a crime in Great Britain to listen to as well as transmit radio signals unless you are licensed. The DTI, *Department of Trade and Industry*, monitored and transcribed their transmissions and then raided their residences -- breaking down the door in at least one case. The DTI attempted to justify their "heavy handed raid" by claiming in court that they feared the group were "spies." The article concludes "Although there are valid security grounds for wanting some transmissions to remain secret, there is no solution to the problem of dangerous (rather than recreational) interception, except to scramble the signals. The editorial called it a fallacy that signals could be made secure using the law, rather than technology. It is estimated that thousands of scanners are now in use in Britain.

• "*Junkfax*" advertising is a fast growing business communications tool. Thermal FAX paper is definitely not cheap. One executive called it an annoyance you pay for while tying up your machine from receiving legitimate business mail. For advertisers, however, it does circumvent the dreaded unopened envelope syndrome. In Oregon, a bill has been introduced making it a crime to transmit unsolicited advertising material via facsimile. The *Direct Marketing Association* is concerned that if lawmakers start considering fax restrictions, unsolicited telemarketing and direct-mail practices could be next. One answer might be equipping future machines with a call-screening function to accept calls only from an approved list of numbers.

• An *International Resource Development* study said that the installed base of fax equipment this year will be 3.4 million and predicts it will exceed 30 million machines by the year 2000. Most machines are Group III, 200 dot-per-inch (dpi) 9,600 bit-per-second (bps) protocol. Group IV compatible machines are expected to come on strong around 1992 and will phase out Group III machines. Group IV fax machines require dedicated lines due to their 56 and 64 kilobit per second transmission rate ...about 30 pages per minute at 400 dpi. *Federal Express* based its ill-fated *Zap Mail* service on Group IV fax. Still faster Group V fax's with 600-1,000 dpi resolution will appear in 1996 and will

make Group IV machines obsolete around 1999. By contrast, mid-1960's vintage, Group I fax machines operated much like a 300-bps modem and took 6 minutes to send a single page! Group II machines - introduced in the 1970's - cut transmission time to 3 minutes per page. Expect a very big improvement in print quality from documents created on a personal computer and sent from a fax card. They require no intermediate conversions. Laser printed fax documents are crisp, clean and precise.

• Coming attractions from **Arno Penzia, AT&T astrophysicist**, 1978 Nobel Prize winner in Physics ...and Bell Labs VP in charge of research. "What I see happening is that the computer, the modem, the fax, the telephone, the camera, even the file cabinet will all be gathered into one unit I call the *Integrated Information Appliance*."

• While many amateurs appear to be upset at the operation of **Herb Schoenbohm, KV4FV**, it appears that he is not breaking the rules. The FCC has spent many hours monitoring his operation and have yet to find a situation where: (1.) he knows he is operating on the same frequency and at the same time as others; (2.) he is actually causing interference; and (3.) there was an existing communication in progress prior to the interference.

ON MORSE CODE TESTING STANDARDS

We have had several comments and inquiries regarding Morse code testing standards. **Rex E. Thomas, W9WQS**, of West Lafayette, Indiana, writes that (according to League advertising) the ARRL code practice tapes have been revised to new spacing standards.

Their Set No. 1 (5-10 WPM) and Set No. 2 (10-15 WPM) are now recorded at the rate of 18 words-per-minute, but the spacing between the characters is made longer to slow the overall code speed. Set No. 3 contains speeds of 15-22 WPM. At speeds of 18 WPM and faster, the characters are recorded using the standard code timing for that speed. Rex inquires about what is "standard."

Back on June 22, 1982, the FCC published a *Public Notice* detailing the specifications used by the FCC for Amateur Radio Morse code test tapes. This has more or less become the defacto standard used in Morse code testing. Here is a partial text of that FCC Bulletin:

"The international standards for the relative duration of elements and spacing employed in the Morse code are defined in *CCITT Recommendation R.140* as adopted by the *VIIIth Plenary Assembly* in November 1980. The 13 and 20 word per minute amateur radio test tapes conform to these standards.

The 5 word per minute amateur radio test tapes are constructed using Morse letters sent at 13 words-per-minute, but with additional spacing between characters and words to provide an effective rate of 5 words-per-minute. This method [commonly referred to as the *Farnsworth* system] is favored for slow telegraph speeds because it is believed to facilitate the attainment of higher speed.

Specifications:

For the 5 words per minute tapes, the modulation rate and duration of unit interval are calculated using 13 words per minute as the desired code speed.

Duration of code elements

Dot - 1 unit interval
Dash - 3 unit intervals

Duration of spacing for 13 and 20 words per minute

Space between elements - 1 unit interval
Space between characters - 3 unit intervals
Space between words - 7 unit intervals

Duration of spacing for 5 words per minute

Space between elements - 1 unit interval
Space between characters - 15 unit intervals
Space between words - 39 unit intervals

Accuracy

Notwithstanding accuracy implied by the above formulas, the timing accuracy of actual test tapes may vary +/- 2%.

Audio frequency range (pitch of CW note)

The audio frequency used is no lower than 700 Hertz and no higher than 1000 Hertz.

Message duration

All tapes run for at least 5 minutes but no longer than 6 minutes.

Message content

The messages transmitted simulate one side of a typical amateur radio conversation using code (CW QSO). Common telegraphy abbreviations, Q-

signals, and amateur conventions (such as RST signal reporting system) are used."

The average word in the English language has been determined to be 50 units long. Since the word PARIS contains exactly 50 units, code speed can be accurately calculated by sending that word a specified number of times. Since numerals and punctuation marks contain more character elements, they count as two characters. The FCC has proposed in their §Part 97 rewrite to allow prosigns to also count as two characters. (New §Part 97.503e) Dot spacing should normally be about 10 per second.

The ARRL now has produced new code test exams for their VEC operation. They have shortened their exams to between five and six minutes long, and their code tests now will match their code practice tapes (see page 108 of May QST). The characters for their 5-WPM and 13-WPM code test will be [Farnsworth method] sent at 18-WPM, with spacing adjusted to arrive at the proper speed. The 20-WPM code test will be sent with "standard" spacing - similar to the FCC standards listed above.

The VEC's, at their annual conferences, have declined to adopt a code test transmission standard, instead leaving it up to the individual VEC to use whatever standard they feel appropriate. The W5YI-VEC program encourages its VE teams to produce their own code tapes and permits code examinations with any spacing as long as the code test tape yields the proper net speed.

Some of our VE teams utilize code tests that are prepared by the VEC office. W5YI-VEC Morse code test tapes that are produced "in house" have the spacing on the 5-WPM and 13-WPM code test Farnsworth spaced at 15 WPM, with the 20-WPM exam spaced at 20.

Most Morse code test preparation material available in the commercial marketplace is produced at the FCC standard, however ...i.e. 13-WPM spacing for the 5 and 13-WPM test - 20-WPM for the 20.

We also understand that the ARRL has now accepted the resignation of **Jim Clary, WB9IHH**, the previous manager of their Volunteer Examiner program effective April 17, and **Bart Jahnke, KB9NM**, has been named as the permanent manager of the ARRL/VEC Department. Clary had been placed on indefinite leave of absence.